

REMARKS

Claims 1 and 3 - 13 are pending and under consideration. In the Final Office Action of February 25, 2003, claims 1 and 3 - 13 were rejected. Claims 8 - 10 were rejected as being indefinite under the first paragraph of §112; claims 1 - 3, 5, 6, 8, 10 and 12-13 were rejected as being obvious over Tokuo in view of “conventional art,” claim 4 was rejected as being obvious over Tokuo in view of “conventional art” and further in view of Kojima; claim 7 was rejected as being obvious over Tokuo in view of “conventional art” and further in view of Nishiguchi; and claim 11 was rejected as being obvious over Tokuo in view of “conventional art” and further in view of Horie. In addition, the Examiner objected to the drawings under 37 CFR 1.83(a).

Objection to Drawings:

Claims 8 and 10 have been amended to clarify that the axially symmetrical orientation of the liquid crystals is “distorted along an axis perpendicular to said at least one substrate” rather than “distorted along a central axis.”

In addition, claim 9 recites the addition of a “chiral substance” to the liquid crystals. The specification has been amended to clarify that the chiral substance may be added to the liquid crystal for distorting the state of orientation of the liquid crystal molecules. The addition of a chiral substance to the liquid crystal is simply to modify the chemical makeup of the particular liquid crystal used, and such modification is well known in the art. See, for example, U.S. Pat. No. 5,463,482 at col. 6, lns. 15-18, which states “Chiral nematic liquid crystal materials (also referred to as cholesteric for historical reasons) may be made by the addition of a chiral additive in an otherwise ordinarily nematic liquid crystal material.” Inasmuch as the resultant liquid crystal material is a mixture, it is unnecessary to expressly indicate the existence of the chiral substance in the liquid crystal 16. Such a requirement would be analogous to an applicant being required to illustrate the addition of water to a viscous substance for changing the viscosity.

Based on the foregoing, Applicants believe that the drawings comply with 37 CFR 1.83(a), and it is thus respectfully requested that the objections to the drawings be withdrawn.

§112 Rejections:

The amendments to claims 8 and 10 remove reference to the “central axis.” Accordingly, it is respectfully submitted that the claims are properly supported by the specification and thus Applicants request that the §112, first paragraph objection to claims 8-10 be withdrawn.

§102(b) and §103(a) Rejections

The Examiner has cited Tokuo, Kojima, Nishiguchi, and Horie either individually or in combination for the Examiner’s §103(a) rejection. The cited references generally disclose liquid crystals comprising a wall structure as an ASM mode, i.e. axially symmetric micro cell mode. None of the cited references, however, teach a liquid crystal display comprising a groove structure in a first substrate adapted for adjusting axial symmetrical orientation of liquid crystals in cooperation with a wall structure *in the same first substrate*, as required by each of the claims. This novel feature has been more clearly recited in independent claims 1 and 13. Because none of the cited references (nor the conventional art) teach such an interrelated wall and groove structure with liquid crystals exploiting axial symmetrical orientation, nor is such a feature suggested by the cited or conventional art, independent claims 1 and 13 are both patentable.

Pending claims 3 - 12 dependent from independent claim 1. Thus, for the same reason claim 1 is patentable over the cited references as discussed above, these dependent claims are likewise patentable over these references.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that pending claims 1 and 3 – 13 are patentable over the cited references. Further, all of the Examiner's objections and rejections have been addressed herein. It is, therefore, submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

Respectfully submitted,
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